United States
Environmental Protection
Agency

Public Affairs (Mail Drop 5)
Research Triangle Park,
North Carolina 27711

Press Advisory

EPA Particulate Matter Study on Elderly Launched

August 10, 1998

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Research Triangle Park, NC.....Senior citizens at a retirement community in Towson, MD, near Baltimore, are undergoing daily health evaluations as part of a four-week study by the U.S. Environmental Protection Agency to learn more about the health effects of small particles in the air, called particulate matter -- one of six criteria air pollutants regulated by the government. The purpose of the study is to gain a better understanding of the biological responses of the elderly, a particularly susceptible subpopulation, related to daily exposure levels.

Approximately 60 residents at Edenwald, a continuing care retirement community, have volunteered for daily testing to measure their lung and heart function. A small number of volunteers will wear personal monitors to measure the air pollutants they are exposed to during their daily living. In addition, air monitoring equipment is set up both inside and outside the retirement center to take advanced air quality measurements. At the end of the study, the investigators will compare air pollution levels to the heart and lung function of the volunteers to see if associations exist.

This is the first of several field studies planned that will examine the cardio-pulmonary responses to exposure to small particles and to investigate just how much an at-risk population is exposed to the pollutant. The study is being conducted by U.S. EPA's National Health and Environmental Effects Research Laboratory and the National Exposure Research Laboratory, both headquartered in Research Triangle Park, NC.

"The residents and staff of Edenwald have been very cooperative in making this important study on particulate matter possible," said Dr. John Creason, principal investigator for the research project. "Their involvement has been critical to EPA's research efforts to better understand the link between this air pollutant and adverse health effects in the elderly," he said.

Particulate matter is an air pollutant that comes from fuel combustion, power plants and diesel buses and trucks. While particulate matter comes in many sizes, fine particles (less than 2.5 micrometers)

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are a health concern because they can easily reach deep into the lungs and cannot be expelled through

normal reflexes, like coughing. Particulate matter is a national air pollution problem and is not unique to the Baltimore area. The city was selected as representative of the air within the Northeast United States. One of U.S. EPA's existing air monitoring networks for particulate matter is located in Baltimore.

Many studies have linked particulate matter, especially fine particles (alone or in combination with other air pollutants), with a series of significant health problems including early death, aggravated asthma, chronic bronchitis, and other respiratory symptoms. Epidemiological studies indicate that exposure to fine particles is associated with tens of thousands of hospital admissions and premature deaths annually.

Researchers will be paying close attention to test results that measure heart rate variability, a measurement of how healthy the heart is. Preliminary results from a pilot study conducted earlier by U.S. EPA and University of North Carolina at Chapel Hill researchers at another retirement center in Baltimore indicated that people with heart problems may have diminished ability of the heart to respond to stress with increased exposure to fine particles. Depressed heart rate variability has been identified as an indicator for risk of sudden death for certain at-risk individuals.

"Edenwald, with its rich heritage of caring for the elderly, is pleased to participate in this EPA study," said Sal J. Molite, Jr., Executive Director of Edenwald. "I am also pleased that our residents have enthusiastically supported this study. Any venture to help with enhancing the quality of life for our seniors is part of Edenwald's mission and philosophy," he added.

According to Mr. Ron Williams of the National Exposure Research Laboratory, "This project will also provide needed information on indoor, outdoor and personal exposure relationships and the changing makeup of particles as they move from the outdoor environment into personal residences."

"Data shows that particulate matter is causing increased mortality and morbidity**,** and this study will be a critical step toward identifying what the role of particulate matter is in adverse health effects," said Dr. Hillel Koren, director of the Human Studies Division at EPA's National Health and Environmental Effects Research Laboratory.

A scientific review by U.S. EPA concluded that fine particles are more likely than coarse particles to contribute to health effects. To protect public health, a new standard for the smaller particles (2.5 micrometers in size) was added in July 1997. Following several years of monitoring, states will be required to develop plans for meeting the new standards.

The study is part of ongoing efforts by U.S. EPA's research facilities in the Office of Research and Development to investigate the biological mechanisms causing adverse health effects of particulate matter and to determine the extent to which populations at risk are exposed to the pollutant.

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